NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FOREST STAND IMPROVEMENT

(Acre)

CODE 666

DEFINITION

The manipulation of species composition, stand structure, and stocking by cutting or killing selected trees and understory vegetation.

PURPOSES

- To increase the quantity and quality of forest products, e.g., sawtimber, veneer, wood fiber, poles, pilings, maple syrup, naval stores, nuts and fruits.
- To harvest forest products.
- To initiate forest stand regeneration.
- To reduce the potential of damage from wildfire, pests, and moisture stress.
- To restore natural plant communities.
- To achieve a desired understory plant community.
- To improve aesthetic, recreation, and open space values.
- To improve wildlife habitat.
- To improve water conservation and yield.
- To achieve a desired level of crop tree stocking and density.
- To increase carbon storage in selected crop trees.
- *To alter light regimes or obtain wood for the production of non-timber forest products.*

CONDITIONS WHERE PRACTICE APPLIES

All forest land where improvement of forest resources is needed.

CRITERIA

General Criteria Applicable To All Purposes

The harvest-regeneration strategy will be identified for all planned forest improvement harvesting:

- Uneven-aged management systems (single-tree selection, group selection, coppice selection)
- Even-aged management (clear-cut, seed-tree, shelterwood, coppice)

The extent or size of treatment area shall achieve the intended purpose.

Preferred tree and understory species are identified and retained to achieve all planned purposes.

Spacing, density, size class, number, and amounts of trees and understory species to be retained will follow established guidelines for the intended purposes. Stocking guidelines shall contain stocking in terms of basal area, spacing or trees per acre by species and size class distribution. *See Appendices 1-5 of this standard.*

The method, felling direction and timing of tree cutting for harvesting shall facilitate efficient and safe tree removal and protect sensitive areas such as vernal pools, riparian zones, cultural resources, and structures.

NRCS, NCPH
August 2000

NRCS, WV
May 2002

Forest stand improvement activities shall be performed to minimize soil erosion, compaction, rutting, and damage to remaining vegetation and hydrologic conditions.

Slash and debris left on the site after treatment will not present an unacceptable fire, safety, environmental, or pest hazard. Such remaining material will not interfere with the intended purpose or other management activities.

Comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice. *See Technical Guide Reference – Best Management Practices for Controlling Soil Erosion and Sedimentation from Logging Operations in West Virginia. (WVDOF-TR-96-3, June 2001).*

TIMBER STAND IMPROVEMENT CRITERIA

- *See Appendix 1*

WOODLAND HARVESTING CRITERIA

- *See Appendix 2*

CONSIDERATIONS

Silvicultural objectives and harvest-regeneration strategies may change over time and may be limited by prior management.

Successful regeneration of desirable species is usually dependent upon timely application of forest stand improvement and other practices, e.g., prescribed burning, site preparation, tree and shrub establishment, prescribed grazing and use exclusion.

The extent, timing, size of treatment area, or the intensity of the practice should be adjusted to minimize cumulative effects (onsite and offsite), e.g., hydrologic and stream alteration, habitat fragmentation, nutrient cycling, biodiversity and visual resources.

Potential landowner and operator liability should be assessed before forest stand improvement activities begin.

The practice should be timed to minimize disturbance of seasonal wildlife activities.

Consider wildlife food and cover needs when making modifications to forest composition and tree spacing.

Consider retention of selected dead and dying trees, including down material, to enhance wildlife habitat values.

Landowners should secure a written contract with any service provider that specifically describes the extent of activity, duration of activity, responsibilities of each party and amount and timing of payments for services provided.

Consider environmental concerns such as threatened and endangered species and natural areas.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

At a minimum, the following will be identified (as appropriate): type of treatment, acreage, location, existing conditions, expected outcomes, landowner objectives, and date.

OPERATION AND MAINTENANCE

Periodic inspections during treatment activities are necessary to ensure that objectives are achieved and resource damage is minimized. Follow-up and ongoing management activities will be needed to obtain desired results.

REFERENCES

American Ginseng GREEN GOLD, Revised Edition, Persons, W. Scott, Bright Mountain Books, Inc., Asheville, NC, 1994.

"American Ginseng Production in Woodlots," Agroforestry Notes, Forest Farming-3, USDA FS/USDA NRCS, Beyfuss, Robert L., July 1999.

"A Silvicultural Guide for White Pine in the Northeast," Forest Service Technical Report NE-41, 1978.

"Choices in Siviculture for American Forests," Society of American Foresters with Cooperation of the Wildlife Society.

“Crop Tree Management In Eastern Hardwoods,” USDA, Forest Service, NA-TP-19-93.

“Even-Aged Siviculture for Upland Central Hardwoods”, USDA Forest Service, Northeast Forest experiment Station, Agricultural Handbook 355, 1968.

“Forest Management Guidelines for Controlling Wild Grapevines,” Northeastern Forest Experiment Station, Research Paper NE-548.

"Farming Exotic Mushrooms in the Forest", Agroforestry Notes, Forest Farming - 3, USDA FS / USDA NRCS, Hill, Deborah, July 1999.

Forest Management Handbook, West Virginia Division of Forestry, State Capitol, Charleston, WV, 1985.

"Growing Ginseng and Goldenseal in Your Forest", Beyfuss, Robert L., Cornell CES, 1998.

“Managers Handbook for Elm-Ash-Cottonwood in the North Central States,” USDA Forest Service, North Central Forest Experiment Station, General Technical Report NC-98.

“Managers Handbook for Oaks in the North Central States,” USDA Forest Service, North Central Forest Experiment Station, General Technical Report NC-37.

“Methods and Costs of Killing Hardwood Culls,” Ryker, Russell A., and Minckler, Leon S., USDA Forest Service, Columbus, OH, Technical Paper 191, November 1962.

“Silvicultural Characteristics of Red Spruce,” USDA, Forest Service Experiment Station Paper No. 124.

“Silvicultural Systems for the Major Forest Types of the United States,” USDA, Forest Service, Agriculture Handbook No. 445.

“Yellow Poplar: Characteristics and Management,” USDA, Forest Service, Agriculture Handbook 583.

“Yield of Virginia Pine,” USDA Forest Service, SE Forest Experiment Station Paper No. 124, June 1961, Nelson, Clutter and Chalker.

“Yield, Stand, and Volume Tables for Even-Aged Upland Oak Forests,” USDA Tech. Bull. No. 560, April 1937, 6. Luther Schnur.